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# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 2, 2017/2018

### **ECE3336 – MOBILE APPLICATION DEVELOPMENT** ( All sections / Groups )

2 MARCH 2018  
3.00 p.m – 5.00 p.m  
(2 Hours)

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#### INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages with 4 Questions only.
2. Attempt **ALL FOUR** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

**Question 1**

- a. Draw the mobile operating system architecture for Android and describe each layer in the architecture.  
[8 marks]
- b. List out the differences between native and hybrid mobile application developments. Give an example for each of those types of developments.  
[6 marks]
- c. List out the differences between implicit intents and explicit intents. Construct an example for each of those types of intents.  
[6 marks]
- d. Which Activity lifecycle callback method is always being overridden? Describe what is being added into the method?  
[5 marks]

**Continued .....**

**Question 2**

- a. What are the advantages of using layout XML in user interface design?

[6 marks]

- b. Figure 2.1 shows a list of email in the Gmail App.

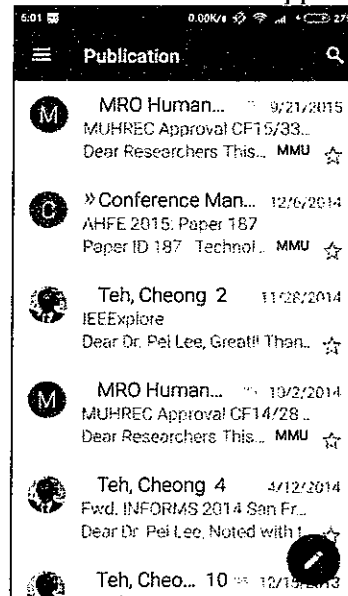


Figure 2.1 Gmail App.

- i. What is the Android Class that is used to display the list? Describe the two additional Sub-classes that are used in the Activity to create and display the list.

[5 marks]

- ii. List out 2 different User Interface (UI) Widgets that can be found in each row of the list and describe the usage of these UI Widgets.

[4 marks]

- iii. Choose one of the UI Widgets listed in (ii), list out 4 of its properties and a typical value for each of those properties.

[8 marks]

- iv. Describe the Action Bar Actions that can be found in the screen.

[2 marks]

Continued .....

**Question 3**

- a. Give an example for each of the two options in connecting to web services in an Android App and compare the main advantage of those options.  
[6 marks]
- b. Draw an Application Not Responding (ANR) dialog. What are the reasons such dialog is shown?  
[7 marks]
- c. Describe the two abstract methods in the SQLiteOpenHelper class.  
[4 marks]
- d. Give an example of the usage of Bluetooth Low Energy in an Android App, clearly describe the different roles of devices and the use of Generic Attribute Profile (GATT) attributes in that example.  
[8 marks]

**Question 4**

- a. What is the main reason an API key is required to access the Google Map API in an Android App? What are the requirements to obtain a Google Map Android API Key?  
[8 marks]
- b. Describe the 3 main motion sensors used in Android App. Describe how motion sensors are used in developing application for Augmented Reality (AR)?  
[8 marks]
- c. Generate the Android source codes to obtain the magnitude of the acceleration within the onSensorChanged(SensorEvent sensorEvent) callback.  
[9 marks]

**End of Page**